

ABSTRACT OF THE DISCLOSURE

A multi-modality imaging system that can be utilized in the volume computed tomography (VCT) mode, the single photon emission computed tomography (SPECT) mode and the positron emission tomography (PET) mode is disclosed. In the VCT mode of operation, three (3) x-ray sources and associated detectors can be utilized. In the SPECT and PET modes of operation, the gamma radiation is provided by an isotope ingested by the patient and is detected by the detectors angularly spaced around the patient. A fused imaging analysis and computer aided diagnosis system is provided and processes the images produced by the multi-modality imaging system. The fused images are analyzed and the fused image data are compared with disease process models to provide feedback to the patient and medical professionals in the form of four dimensional displays and interactive image visualizations.